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EXAMINER	
BANH, DAVID H	
ART UNIT	PAPER NUMBER
2854	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,766	SCHULTHEIS ET AL.	
	Examiner	Art Unit	
	DAVID BANH	2854	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 September 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10-15,17-24,26-34 and 36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-15,17-24,26-34 and 36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-8, 10-15, 17-24, 26-34 and 36 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claim 1 is objected to because of the following informalities: The designation for the “one heating element (23)” in line 12 should be "one heating element (24)" to conform to the earlier recitation. Appropriate correction is required.

3. Claims 5 and 21 are objected to because of the following informalities: A comma should appear between the recitation “charge of the toner” and “the base” in the third line of the claim. Appropriate correction is required.

4. Claim 12 is objected to because of the following informalities: Claim 12 depends on claim 9, which has been cancelled. It is believed that claim 12 is intended to depend on claim 8 and examination is done in this direction. Appropriate correction is required.

5. Claim 13 is objected to because of the following informalities: Claim 13 recites “a heating element (24)", however, said heating element is already recited and should be referred to by the definite article “the” or “said”.

6. Claim 28 is objected to because of the following informalities: In claim 28, the recitation "the temperature sensors" lacks antecedent basis. Appropriate correction is required.

7. Claims 30 and 33 are objected to because of the following informalities: In claim 30, the recitation "the surface of the transfer medium" lacks antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-8, 10, 11, 20-24, 26, 30, 32 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by De Bock et al. (US Patent 5,893,018).

For claim 1: De Bock et al. teaches a printing device **10** (see Fig. 10) with an electrophotographic print unit **18** including a cylindrical photoconductor (see Fig. 10, in each unit **18, 20, 22, 24** there is a photoconductor drum) to which a transfer medium **146** for transferring a toner powder to a substrate **28** in a transfer zone (see Fig. 10, the zone is the region formed by rollers **43, 150** and the web path **28**) is assigned, wherein the substrate **28** can be conducted through the transfer zone (see Fig. 10, the path of web **28** moves through the transfer zone) by a transport system (see Fig. 10, the transport system comprises rollers **30, 32, 34, 36**, moving the web **28**), wherein heat energy can be introduced into web **28** by at least one heating element **70**, and a cooling device **110** is assigned to the transfer medium **146** which removes heat from the transfer medium **146** (see Fig. 10, **110** is a cooling device, a cooling device removes heat). MPEP §2114 cites *In re Schreiber,* while features of an apparatus may be

recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. Therefore, the structure of the prior art need only be capable of producing the intended function. Thus, in De Bock et al., the printing device **10** is capable of having, at a transfer zone formed with the substrate **28**, the transfer medium **146** having a lower temperature at least in an area of the contact face than at a surface of the substrate **28** (the transfer medium **146** has a cooling mechanism **110**, and operating the cooling mechanism without the heating mechanism **109**, while operating the heating mechanism **70** would increase the temperature of the substrate **28** beyond that of the transfer mechanism **146**), the at least one heating element **70** arranged upstream of the transfer medium in a transport direction of the substrate **28** (see Fig. 10, the directional arrow **C** shows that the heating element is upstream of the transfer point), wherein a surface of the substrate **28** to be imprinted is heated by the at least one heating element **70** to a predetermined temperature upstream from the transfer medium **146** (a heating element is clearly capable of heating the substrate, and especially the surface of the substrate), and the transfer medium **146** is one of a transfer roller or a transfer belt which contains at least a portion of the cooling device **110** (see Fig. 10, the transfer medium **146** is a belt which contains the cooling device **110**).

For claim 2: De Bock et al. teaches the printing device of claim 1 wherein the cooling device **110** is capable of cooling the transfer medium **146** to a temperature of under 60 degrees Celsius (at least over time, the cooling device certainly can cool a medium to lower than an ambient or room temperature).

For claim 3: De Bock et al. teaches the printing device of claim 2 wherein the cooling device **110** is capable of cooling the transfer medium **146** to a temperature of under 40 degrees Celsius.

For claims 4 and 20: De Bock et al. teaches the printing device of claims 3 and 1 wherein the toner transfer in the transfer zone is affected by at least one corona (see column 19, lines 50-68, the transfer medium **146** in one embodiment is a charged metal which thus has a corona which is present at toner transfer in the transfer zone).

For claims 5 and 21: De Bock et al. teaches the printing device of claims 4 and 1 wherein the substrate **28** is placed on an electrically conductive base (at the transfer zone, see column 19, lines 50-68, and Fig. 10, the substrate is on the transfer medium which is a metal, which is electrically conductive) and the base is a charged with a reverse polarity of the toner (given a charged toner on a conductive base, the laws of forces and electromagnetism will cause charges opposite the charge of the toner to accumulate near the toner and like charges to move to a distal end, thus the base will have a reverse polarity near the toner).

For claims 6 and 22: De Bock et al. teaches the printing device of claims 5 and 22wherein the substrate **28** is moved beyond the transfer medium synchronously with respect to a circumferential speed of the transfer medium **146** by transport system (transport system **30, 32, 34, 36** can be moved at the same speed as transfer medium **146** with rollers **14, 16, 150, 152**) and a charge with an opposite polarity relative to a second charge of the toner is applied to the transfer medium **146** in the transport system (already a charge is applied to the transfer medium **146** as taught in column 19,

lines 50-68; for the transfer medium **146** to be operational in attracting and transferring toner, the charge must be opposite the charge of the toner, see column 15, lines 30-35, directed to a different embodiment but establishing the scientific concept from physics).

For claims 7 and 23: De Bock et al. teaches the printing device of claims 6 and 1 wherein on the surface which receives the toner powder, the transfer medium **146** has an anti-adhesive layer (see column 19, lines 50-68, this teaches that the transfer medium has a silicon elastomer on top of the metal base), and the anti-adhesive layer has a surface energy within a range of 15 micro-Newtons per meter and 30 micro-Newtons per meter (see column 4, lines 40-45, the silicon elastomer has a surface energy of 20 dynes per centimeter, which is 20 micro-Newtons per meter, since it has the appropriate surface energy, it is appropriately anti-adhesive).

For claims 8 and 24: De Bock et al. teaches the printing device of claims 7 and 1 wherein the substrate **28** is chargeable with heat energy by at least one heating element **70** designed as an infrared radiator or a hot air blower by application of flame (see column 16, lines 64-67, the heater **70** is an infrared radiant heater pair).

For claims 10 and 26: De Bock et al. teaches the printing device of claims 8 and 1 wherein the heating element **70** heats the surface of the substrate **28** to a temperature between 80 degrees Celsius and 200 degrees Celsius (the heater **70** is capable of raising the temperature of the surface to between these ranges, other heaters in the invention produce temperatures in this range, see column 3, lines 60-65, see column 10, lines 25-30, the temperature of the substrate is raised to 100 degrees Celsius here, with the heater contributing).

For claim 11: De Bock et al. teaches the printing device of claim 10 wherein the surface temperature of the substrate **28** is 100 degrees to 170 degrees Celsius in at least certain areas (see column 10, lines 25-30, the temperature of the substrate is raised to 100 degrees Celsius).

For claim 30: De Bock et al. teaches the printing device of claim 1 wherein a climate controlled air flow is directed at the surface of the transfer medium **146** (see column 20, lines 25-30, the cooling device **110** sprays cold air).

For claim 32: De Bock et al. teaches the printing device of claim 1 wherein the cooling device **110** removes heat from the transfer medium **146** downstream of the transfer zone and upstream of the photoconductor (see Fig. 10, **110** is positioned downstream of transfer zone and upstream of photoconductor).

For claim 33: De Bock et al. teaches the printing device of claim 1 wherein the cooling device **110** removes heat from the transfer medium **146** which cools the toner powder (the cooling device **110**, in column 20, lines 25-30 sprays cold air at the transfer medium **146** and thus cools it, which thus must produce some cooling effect on the toner downstream, the prevention of the toner powder from adherence to the surface of the medium **146** is an intended use, since the reference teaches all of the structure of the apparatus, the function is implied to be performable).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 12, 13, 17, 19, 27, 28, 31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Bock et al. (US Patent 5,893,018) in view of Masuda et al. (US PG Pub 2002/0159785).

For claims 12 and 27: De Bock et al. teaches all of the limitations of claim 12 and 27 except that a temperature sensor is assigned to the substrate, and at least one of the heating element and the transport system is controlled by a control device as a function of the signal emitted by the temperature sensor. Masuda et al. teaches a sensor **30** assigned to the substrate **P** and a heating element **38** controlled by a signal emitted by the temperature sensor **30** (the sensor emits the signal to controller **42** which controls heating element **38** based on the signal, see paragraph 35-37). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a temperature sensor for the web and a control for controlling a subsequent heating element for the web as taught by Masuda et al., by incorporating both as the heating element **70** of De Bock et al., for the purpose of having a more precise control of the web temperature even in light of different web materials with different heating tendencies.

For claim 13: The combination of De Bock et al. and Masuda et al. teaches the printing device of claim 12 and Masuda et al. further teaches a plurality of temperature sensors **30, 38** arranged over the entire print width (see Fig. 1, and paragraphs 38-40, the sensors are arranged over the print width, so they are arranged above the entire print width) and a heating element **28, 38** is assigned to each of the temperature

sensors (see Fig. 1) and a heating output is separately controlled within zones over a print width (see paragraph 32, the member **28** can comprise a plurality of lamps which are individually controlled which will control the heating output in zones).

For claim 28: De Bock et al. teaches all of the limitations of claim 1 except that it does not teach a plurality of temperature sensors arranged over an entire print width and a heating element assigned to each of the temperature sensors wherein the heating out is separately controlled within zones over a print width. However, Masuda et al. teaches a plurality of temperature sensors **30, 38** arranged over the entire print width (see Fig. 1, and paragraphs 38-40, the sensors are arranged over the print width, so they are arranged above the entire print width) and a heating element **28, 38** is assigned to each of the temperature sensors (see Fig. 1) and a heating output is separately controlled within zones over a print width (see paragraph 32, the member **28** can comprise a plurality of lamps which are individually controlled which will control the heating output in zones). It would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the multiple sensors over the print width to control the temperature of the web in zones to prevent any portion of the web from getting too hot and being unacceptable for toner or igniting.

For claim 34: De Bock et al. teaches a printing device **10** (see Figs. 1 and 2) with an electrophotographic print unit **18** (see Fig. 3), the printing device comprising an electrophotographic print unit **18** including a photoconductor roller **72**, charge station **76** for imparting a charge to the photoconductor roller **72**, and a developer unit **80** for applying a toner powder to charged area of the photoconductor roller **72**, a transfer

medium **12** for transferring the toner powder from the photoconductor roller **72** to a substrate **28** in a transfer zone (see Figs. 1 and 2, the transfer zone is where the transfer medium **12** and substrate **28** meet), a transport system **30, 32, 34, 36** for conducting the substrate **28** through the transfer zone (see Fig. 2), a heating element **70** arranged upstream of the transfer medium **12** in a transport direction of the substrate **28** (see Fig. 1), wherein the heating element **70** introduces heat energy to the substrate **28** upstream of the transfer medium **12** and a cooling device **110** is assigned to the transfer medium **12** and removes heat from the transfer medium **12**, wherein at the transfer zone formed with the substrate **28**, the transfer medium **12** has a lower temperature at least in an area of the contact face than at a surface of the substrate **28** (the substrate is capable of having a higher temperature since it is heated and medium is cooled).

De Bock et al. does not teach a temperature sensor arranged between the heating element and the transfer medium for monitoring the temperature of the substrate. However, Masuda et al. teaches a sensor **30** assigned to the substrate **P** and a heating element **38** controlled by a signal emitted by the temperature sensor **30** (the sensor emits the signal to controller **42** which controls heating element **38** based on the signal, see paragraph 35-37). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a temperature sensor for the web and a control for controlling a subsequent heating element for the web as taught by Masuda et al., by incorporating both as the heating element **70** of De Bock et al., for the purpose of having a more precise control of the web temperature even in light of different web materials with different heating tendencies.

For claim 17: The combination of De Bock et al. and Masuda et al. teaches that that a transfer belt and a transfer roller are equivalents (see column 4, lines 45-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the transfer belt shown in Figs. 1 and 2 of De Bock et al. with an equivalent drum for the purpose of lithographically moving toner from a photoconductive drum to a web. De Bock also teaches interior air cooling of rolls in the transfer medium (column 21, lines 35-45, cooling may be caused by internal fluid cooling, air is a fluid, although water is a better conductor of heat). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide interior art cooling in the transfer roller for the purpose of saving space while reducing the surface temperature of the medium.

For claim 19: The combination of De Bock et al. and Masuda et al. teaches the printing device of claim 34 wherein the cooling device **110** of De Bock et al. is capable of cooling the transfer medium **12** to a temperature of under 60 degrees Celsius (at least over time, the cooling device certainly can cool a medium to lower than an ambient or room temperature).

For claim 31: The combination of De Bock et al. and Masuda et al. teaches the printing device of claim 34 and De Bock et al. further teaches that the transfer medium is a transfer belt **12** (see Figs. 1 and 2, also together with belt **94**) that contains a portion of the cooling device **110**.

12. Claims 14, 15, 18 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Bock et al. (US Patent 5,893,018) and Masuda et al. (US PG Pub

2002/0159785) as applied to claim 13 and 28 above, and further in view of Behnke et al. (US PG Pub 2002/0088799).

For claims 14 and 29: The combination of De Bock et al. and Masuda et al. teaches all of the limitations of claims 14 and 29 except that the temperature sensor is a pyrometer. However, Behnke et al. teaches the use of a pyrometer as a temperature sensor for detecting the temperature of a web (see paragraph 24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a pyrometer as the temperature sensor for detecting the temperature of the web as taught by Behnke et al. for the purpose of knowing when the web gets too hot and turning off the heating elements to prevent a fire.

For claim 15: The combination of De Bock et al., Masuda et al. and Behnke et al. teaches the printing device of claim 14 and De Bock et al. teaches a climate controlled air flow directed onto the surface of the transfer medium **146** as the cooling device **110** (see column 20, lines 25-30, the cooling device **110** sprays cold air).

For claim 18: The combination of De Bock et al., Masuda et al. and Behnke et al. teaches the printing device of claim 15 and De Bock et al. teaches that the cooling device **110** removes energy from the transfer medium **146** downstream of the transfer zone and upstream of the photoconductor (see Fig. 10).

13. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Bock et al. in view of Malhotra et al. (US Patent 6,096,443).

De Bock et al .teaches the printing device according to claim 1. It does not teach the use of a plastic substrate. However, Malhotra et al. teaches the use of a plastic

substrate in an electrophotographic press (column 1, lines 55-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a plastic substrate in the electrophotographic press for the purpose of producing transparencies.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID BANH whose telephone number is (571)270-3851. The examiner can normally be reached on M-Th 9:30AM-8PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571)272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DHB

/Judy Nguyen/
Supervisory Patent Examiner, Art Unit 2854